

MINIMUM DATA SET FOR NURSING HOME RESIDENT ASSESSMENT AND CARE SCREENING (MDS)
(Status in last 7 days, unless other time frame indicated)

SECTION A. IDENTIFICATION AND BACKGROUND INFORMATION

1. ASSESSMENT DATE	Month	Day	Year
2. RESIDENT NAME			
3. SOCIAL SECURITY NO.			
4. MEDICAL NO. (if applicable)			
5. MEDICAL RECORD NO.			
6. REASON FOR ASSESSMENT			
7. CURRENT PAYMENT SOURCE FOR N. STAY			
8. RESPONSIBILITY LEGAL GUARDIAN			
9. ADVANCED DIRECTIVE			
10. DISCHARGE PLANNED WITHIN 3 MOS			
11. PARTICIPATED IN ASSESSMENT			
12. SIGNATURE AND SECTION COMPLETE			

4. COGNITIVE SKILLS FOR DAILY DECISION-MAKING	(Made decisions regarding tasks of daily life.) 0 Independent—decisions consistent/reasonable 1 Modified Independence—some difficulty in new situations only 2 Moderately Impaired—decisions poor; cues/supervision required
---	---

EVALUATION OF THE

Nursing Home Resident Assessment Instrument

Executive Summary



Health Care Financing Administration



RA
997
E85
1996

3. MEMORY/RECALL	long past 0 Memory OK 1 Memory problem (Check all that resident normally able to recall during last 7 days): Current season: a. That he/she is in a nursing home Location of own room: b. NONE OF ABOVE are recalled Staff names/faces: c. Appropriate response: ☐ = Check all the responses that apply	d. e.
------------------	---	----------

2. VISUAL LIMITATIONS/DIFFICULTIES	Colors, or shapes Side vision problems—decreased peripheral vision (e.g., leaves food on one side of tray, difficulty traveling, bumps into people and objects, misjudges placement of chair when seating self) Experiences any of following: sees halos or rings around lights; sees flashes of light; sees "curtains" over eyes NONE OF ABOVE	a. b. c.
3. VISUAL APPLIANCES	Glasses, contact lenses, lens implant, magnifying glass 0 No 1 Yes	

This research was performed under Contract #88-500-0055 for the Health Standards and Quality Bureau, Health Care Financing Administration, U.S. Department of Health and Human Services. Dr. Catherine Hawes was the Project Director for this contract. The authors gratefully acknowledge the important support and assistance provided throughout the project by staff of the Health Standards and Quality Bureau. However, the views expressed herein are solely the responsibility of the authors and do not necessarily reflect the views of the funding agency or its staff.

RA
997
.E85
1996

Evaluation of the Nursing Home Resident Assessment Instrument

Executive Summary

Charles D. Phillips, Ph.D., M.P.H.
Program on Aging and Long-Term Care
Research Triangle Institute

Catherine Hawes, Ph.D.
Program on Aging and Long-Term Care
Research Triangle Institute

Vince Mor, Ph.D.
Center for Gerontology and Health Care Research
Brown University

Brant E. Fries, Ph.D.
Institute of Gerontology, University of Michigan
and Ann Arbor VA Medical Center

John N. Morris, Ph.D.
Research and Training Institute
Hebrew Rehabilitation Center for Aged

January 1996



CMS Library
02-07-13
7500 Security Blvd.
Baltimore, MD 21244

Evaluation of the Nursing Home Resident Assessment Instrument—Executive Summary

Background

The Nursing Home Reform Act in the Omnibus Budget Reconciliation Act of 1987 (OBRA-87) was the most sweeping reform legislation in long-term care since the introduction of Medicare and Medicaid. This Act, built on the strong foundation of an Institute of Medicine report,¹ contained a series of important reforms of standards aimed at enhancing the quality of life and the quality of care experienced by the more than 1½ million Americans who receive nursing home care each day in this country.²

The Act also revamped the inspection or survey process that is the mainstay of governmental quality assurance efforts; it addressed the issue of the inappropriate use of both physical and chemical restraints; and it restructured the sanctions available for use against facilities that violate the regulations.

In addition, the OBRA-87 reforms required that nursing facilities use a clinical assessment tool known as the Resident Assessment Instrument (RAI). The RAI was developed by a research consortium under contract with the Health Standards and Quality Bureau (HSQB) of the Health Care Financing Administration (HCFA).^{3,4}

The RAI consists of the Minimum Data Set for Nursing Home Resident Assessment and Care Screening (MDS) and 18 problem-focused Resident Assessment Protocols (RAPs), as well as a quarterly review form and a training manual.⁵ The purpose of these assessments is to identify a resident's strengths, preferences, and needs in key areas of functioning and to guide the development of the resident's plan of care.

The RAI went into effect as part of Federal law in October 1990. However, as a practical matter, most States required facilities to begin implementing the RAI starting in the Spring and early Summer of 1991.

This Executive Summary presents the major findings of an evaluation of the RAI's implementation conducted by the Research Triangle Institute and its collaborators at the Hebrew Rehabilitation Center for Aged in Boston, the Center for Gerontology and Health Care Research at Brown University, the Institute of Gerontology at the University of Michigan, and the Ann Arbor Medical Center.

The central question in the evaluation of the RAI's impact was whether it affected the quality of care received by nursing home residents.

A brief summary of the study methods is provided. This is followed by a series of tables summarizing the study results and indicating how the RAI affected both process and outcome quality in the nursing homes involved in the study. Extended treatment of each of the topics addressed in this document is available elsewhere.⁶⁻¹⁰

Methods

Data Collection

As part of the mandated evaluation of the RAI, data were collected on the implementation of the RAI onsite at 254 facilities located in 42 counties in or adjacent to 10 Metropolitan Statistical Areas (MSAs), each in a different State.

These 10 MSAs were chosen to reflect environments that differed in reimbursement strategy, reimbursement level, and facility staffing. They were: Baltimore, Maryland, Cleveland, Ohio, Dallas, Texas, Des Moines, Iowa, Hartford, Connecticut, Minneapolis, Minnesota, Nashville, Tennessee, Oakland, California, Portland, Oregon, and Virginia Beach, Virginia.

Data were collected at these sites prior to and following the implementation of the RAI. Prior to the implementation of the RAI, baseline (Fall, 1990) and 6-month follow-up data (Spring, 1991) were collected on a randomly selected sample of over 2,000 residents in over 250 homes in these 10 areas. Data collection involved reviewing all medical records related to each resident (e.g., assessments, physician's orders, nursing notes), reviewing the resident's care plan, and conducting a full MDS-based assessment of each sampled resident. This included interviews with, and observation of, the resident and interviews with staff, across multiple shifts, who provided care to the resident. In addition, we collected information on any time a resident spent out of the facility during the 6-month follow-up period.

Following implementation of the RAI in 1993, another cohort of 2,000 residents was randomly selected from these same facilities. Again the research team collected baseline and 6-month follow-up data on these residents. In both the pre-RAI and the postimplementation cohorts, the transitions of all residents who were discharged from the study facilities prior to the 6-month follow-up were tracked. Analysis indicated no significant differences in attrition between baseline and follow-up for the two cohorts.

Finally, both prior to and following the implementation of the RAI, telephone interviews were conducted with the facility administrator and Director of Nursing in each of the study facilities. They were queried concerning their assessment and care planning practices and, in the postimplementation period, were asked about their experiences with the RAI.

Research Questions

A wide range of issues were addressed in evaluating the RAI. This summary addresses major issues investigated by the research team, including

- What was the facility staff's response to the RAI?
- Did the RAI improve the assessment and care planning process?
- How did the RAI affect process quality in facilities?
- Did the RAI affect resident outcomes?

Analytic Approach

All of the analyses in the evaluation were carried out using individual-level data. The evaluation took place in a series of steps. The first steps involved the calculation of descriptive statistics for items and the investigation of bivariate relationships in the data.

The next steps involved the use of multivariate models. Depending on the dependent variable and the research issue, the research team used ordinary least squares regression, logistic regression, or polytomous logistic regression models.

All of the data analyzed during the course of the RAI evaluation were gathered using a multistage sampling strategy that involved repeated measures. Thus, all statistical analyses were performed using analysis software (i.e., SUDAAN) that provides appropriate standard errors for clustered data.¹¹

Results

Staff Responses to the RAI

A majority of both facility administrators and Directors of Nursing were quite positive about the effects of the RAI's implementation.⁷

As Table 1 indicates, three-quarters of the Directors of Nursing believed that the RAI is

Table 1. Perceptions of Effects of RAI Implementation, Based on Administrator and Director of Nursing Responses to Attitudinal Questions*

Respondent and Item	Percentage Agreeing
DON: During RAI implementation, clinical staff were strongly opposed to using RAI.	65 (3.43)
DON: Despite the passage of time, clinical staff are still resistant to using the RAI.	43 (5.62)
ADM: The information that is obtained through the RAI is worth the time and effort spent by staff.	64 (4.64)
ADM: The RAI is an excessive paperwork burden.	68 (5.98)
DON: Your facility's former assessment system was less useful than the RAI.	75 (5.58)
ADM: For the most part, the RAI has improved the quality of residents' clinical assessments in this facility.	59 (6.16)
ADM: For the most part, the RAI has improved the quality of care planning in this facility.	68 (3.49)
DON: The RAI has improved the ability of the staff to assess the functional status of residents.	69 (5.82)
DON: The RAI has improved the ability of the staff to assess the cognitive status of residents.	61 (4.18)
DON: Since RAI implementation, the preferences of individual residents have been addressed more fully in care plans.	63 (3.80)
DON: For residents identified as having the same problem, the RAI is helpful in individualizing their care plans.	58 (5.96)
DON: The MDS is a good tool to detect clinically meaningful change in resident functioning.	78 (5.57)

*The items originally varied in terms of whether a positive response constituted a positive response concerning the RAI. They have been transformed for this table to aid in the clarity of the presentation. The entries in parentheses below the percentages are the standard errors of the percentages.

more useful than their pre-OBRA assessment system. Sixty percent or more believed that the RAI improved the quality of assessments and care plans, helped individualize care plans, and helped in detecting clinical change in residents.

Administrators also believed that the RAI improved quality of assessment (59 percent) and care planning (68 percent) in their facilities. Sixty-four percent said the completion of the

RAI was worth the effort, although 68 percent also believe that the RAI constitutes an excessive paperwork burden.

The results presented in Table 1 are quite positive, especially given the nursing home industry's historical antipathy to regulation. However, the telephone survey results reported in Table 1 simply represent facility staff's perceptions of the RAI and its impact. The full im-

part of the RAI is seen in the empirical resident-level information gathered both prior to and following the implementation of the RAI.

Effects on Assessment and Care Planning

The accuracy of assessment data and the comprehensiveness of care plans increased significantly from the pre-RAI to the post-RAI period.⁷

As part of the data collection process, research nurses used the information available in residents' records (e.g., assessments, orders, notes) to score them on 23 functional items (e.g., urinary continence, short-term memory, eating).

The accuracy of this information was then compared with the data gathered in the full functional MDS assessment performed by the research nurses, which included information from records, staff interviews, and interviews with and observations of the resident.

Table 2 compares the accuracy of the facility information for these 23 items in the pre-RAI

and post-RAI periods. As that table demonstrates, the level of accuracy increased significantly.

In the pre-RAI period, only 18 percent of residents had accurate information in their records on all or almost all (90-100 percent) of the items. In the post-RAI period, the proportion of residents with accurate information on all or almost all of the 23 items was almost three times higher (49 percent).

As part of the data collection, residents' care plans were reviewed to determine the extent to which their problems and their potential for improvement were being addressed.

Resident Assessment Protocols (RAPs) identify problems, risks for the development of problems, and residents' potential for improved function in 18 key areas (e.g., continence, mood, skin condition, ADLs). These RAPs should help facilities identify the need for care planning and develop appropriate interventions.

Table 3 presents information on the degree to which problems identified by the RAPs were

Table 2. Summary Measures for Percentage of Accurate Information Available for Residents

Assessment Area	Percentage of Items Accurate	Percentage of Residents	
		1990	1993
All items (23)	0-59	30.6	8.0
	60-89	51.8	43.5
	90-100	17.6	48.6
Functional/continence (12)	0-59	36.4	15.9
	60-89	37.9	28.2
	90-100	25.7	55.9
Cognitive/psychosocial (5)	0-60	41.4	14.3
	80	29.2	26.1
	100	29.4	59.6

*The probabilities of the chi-squares for the three contingency tables formed by the data presented above (e.g., accuracy of all items by time, accuracy of functional/continence items by time) were less than .0001.

Table 3. Percentage of Residents Who Have Triggered RAP Problem Addressed in Their Care Plan

RAP Area	Problem Addressed (%)		Statistical Significance
	1990 Cohort	1993 Cohort	
Delirium	36.6	29.1	<.05
Cognitive loss	74.5	86.5	<.001
Visual function	47.8	61.3	<.001
Communication	61.4	72.3	<.001
ADL rehabilitation	79.1	92.3	<.001
Incontinence/catheter	75.6	84.3	<.001
Well-being	75.2	79.8	>.05
Mood state	62.6	72.6	<.001
Behavior	73.3	86.2	<.001
Activities	77.8	84.6	>.05
Falls	55.6	72.2	<.001
Nutritional status	87.9	92.3	<.001
Feeding tubes	82.4	93.9	<.05
Dehydration	53.1	65.5	<.001
Dental care	30.4	47.3	<.001
Pressure ulcers	64.0	48.7	<.001
Psychotropic drug use	43.7	75.7	<.001
Physical restraints	68.4	75.3	>.05

addressed in residents' care plans. In 13 of the 18 RAP areas, residents in the post-RAI period were significantly more likely to have an identified problem dealt with in their care plans.

Effects on Other Indicators of Process Quality

On a range of other indicators of process quality, differences between the pre-RAI and post-RAI cohorts provided evidence of better quality of care in the post-RAI period. However, on some indicators, there was no evidence of change.⁷

Table 4 compares the process of care from the pre-RAI and post-RAI periods based on selected indicators. This table presents the prevalence of various problems in the two cohorts. Although unadjusted prevalences are displayed, the statistical significance of the differences between these prevalences was based on logistic regression models that contained covariates to control for differences in resident status across the two cohorts.

Changes in 10 of the 13 indicators imply better quality in the post-RAI period. However, those differences are statistically significant in

Table 4. Differences in Prevalence of Problems in Process Quality

Process Quality Measure	Prevalence (%)		Statistical Significance
	1990 Cohort	1993 Cohort	
Process Quality Indicators, Using Total Resident Population			
Any advanced directives	35.2	57.7	<.001
Indwelling urinary catheter	9.8	7.0	<.001
Not involved in activities	16.6	12.0	<.001
Protective/preventive skin care	56.7	60.9	>.05
Restraints used	38.0	28.5	<.001
Average number of days of therapy	.17	.12	<.01
Process Quality Indicators, Using Relevant Subsets of the Total Population			
Residents with inadequate hearing and no hearing aid or hearing aid not used	79.6	70.3	<.05
Residents with inadequate (but some) vision without glasses or contact lenses	22.2	26.4	>.05
Residents with no ostomy and bowel incontinence and no toileting program	13.9	8.8	<.001
Residents with urinary incontinence and no indwelling catheter but no toileting program	58.7	57.6	>.05
Residents with persistent sad mood or depression diagnosis and no mood improvement in the past 90 days who are not getting antidepressants or psychological therapy	65.5	57.5	>.05
Residents with a behavioral symptom who do not receive a behavior management program	22.0	16.1	<.05

only 6 of those 10 instances. For example, indwelling catheters were significantly less prevalent; fewer residents had little or no involvement in activities; residents with bowel incontinence were more likely to have a toileting program; and residents with behavior problems were more likely to be involved in a behavior management

program that did not rely exclusively on drugs or physical restraints.

In other areas, however, no positive change was observed. In the post-RAI period, the use of antidepressants for residents presenting with symptoms of depression was not significantly higher. Also the number of residents with uri-

nary incontinence who were on a toileting program was not different in the two cohorts. And, significantly fewer residents were receiving specialized therapy.

Effects of the RAI on Hospitalization of Residents

The unadjusted probability of hospitalization dropped from 20.5 in the pre-RAI cohort to 15.1 in the post-RAI cohort. Multivariate analysis revealed that the relative adjusted odds of hospitalization in the post-RAI cohort were 0.74. No cohort differences were observed in death rates or rates of discharge home.⁸

Part of the data collection involved creating a complete record of each resident's transitions across care settings during the 6 months between the baseline and the followup assessment.

Analyses of these data indicate that the 6-month hospitalization rate dropped from 21 percent for the pre-RAI cohort to 15 percent for the post-RAI cohort. This drop occurred with no significant change in the 6-month mortality rate for residents (11.42 percent for the pre-RAI cohort to 10.8 percent for the post-RAI cohort).

All of these findings were sustained after controlling for resident characteristics, including the presence of advance directives and analyzing the data using polytomous logistic regression. Table 5 presents the results from the general multivariate modeling of hospitalization rates.

Further analyses indicate that the odds of hospitalization changed most significantly among cognitively impaired residents. The hospitalization rate changed only slightly for cognitively intact residents. Finally, among survivors, residents whose ADL or cognition was stable were one-third as likely to be hospitalized in the post-RAI period. Hospitalization among those who declined in function did not change.

Table 5. Polytomous Logistic Regression Results for First Discharge Site—Odds of Being Hospitalized Versus Remaining in the Facility*

Independent Variable	Adjusted Odds Ratio	Statistical Significance
ADL impairment	1.07	>.05
Cognitive impairment	.94	<.01
Gender (female)	.68	<.001
Age (log)	1.03	>.05
Married	1.49	>.05
Long-stay resident	.60	>.05
Case-Mix Index	1.32	>.05
DNR order present	.63	<.001
Post-RAI cohort	.74	<.001

* Results for odds of being discharged home or death are not presented. There were no significant cohort effects on these outcomes.

Effects of the RAI on Selected Health Conditions

Differences in the pre-RAI and post-RAI cohorts in eight selected areas of health were analyzed. The results indicate that, in two of these areas, residents in the post-RAI cohort exhibited higher rates of stability. These higher rates were generated by lower rates of both decline and improvement. However, the reductions in decline outweighed the reductions in improvement.⁹

Eight health conditions, six of them explicitly dealt with in RAPs, were considered in these analyses: dehydration, falls, nutritional status, vision, stasis ulcers, pressure ulcers, daily pain, and broken teeth.

Comparing the pre-RAI and post-RAI baseline rates for these problems, three showed statistically significant differences. Two of these three, dehydration and stasis ulcer, showed significant reductions from the pre-RAI baseline to the post-RAI baseline. Only daily pain was significantly more prevalent in the post-RAI period. Three more of the eight conditions showed reductions between the post-RAI and the pre-RAI cohorts, but these differences did not achieve statistical significance.

Table 6 provides information on the changes from baseline to followup for these eight conditions. The table presents regression parameters from the logistic regressions evaluating the effects of membership in the pre-RAI and post-RAI cohorts.

Only two of the eight conditions (nutritional status and vision) showed significant differences in the rates of change. For both conditions, residents in the post-RAI cohort were significantly more likely to remain stable. This stability came as a result of lower rates of both decline and improvement among the post-RAI cohort.

However, when one weighs the reductions in decline against the reductions in improvement for these two indicators, significantly more residents avoided decline than failed to improve. So, on balance, these changes resulted in better outcomes for the post-RAI cohort.

Effects of the RAI on Selected Functional Outcomes

Longitudinal outcomes in nine functional areas were evaluated. In four of the most crucial areas (ADL function, cognitive function, urinary continence, and social engagement), resident outcomes were significantly better in the post-RAI period. In bowel continence and being understood, resident outcomes were basically no different in the two cohorts. Communication, mood, and behavior outcomes were significantly worse in the post-RAI period than in the pre-RAI period. Detailed analyses showed that rates of change in outcomes varied considerably, depending on residents' functional status or their cognitive status.¹⁰

Table 6. Logistic Regressions of Effects of Cohort Membership on Decline and Improvement in Eight Health Conditions

Health Condition	Decline		Improvement	
	Regression Coefficient	Statistical Significance	Regression Coefficient	Statistical Significance
Dehydration	.07	>.05	-.69	>.05
Fall	-.23	>.05	-.10	>.05
Nutrition	-.61	<.001	-.67	<.001
Pressure ulcer	-.23	>.05	-.18	>.05
Vision	-.90	<.001	-.65	<.001
Stasis ulcer	-.34	>.05	-.13	>.05
Pain	-.12	>.05	-.09	>.05
Broken teeth	-.27	>.05	-.40	>.05

In the analysis of functional outcomes, the most striking result was a significant increase in the stability of residents' functional status from the pre-RAI cohort to the post-RAI cohort. Residents in almost all of the nine functional areas investigated were much more stable from baseline to followup in the post-RAI cohort than in the pre-RAI cohort.

The results of multivariate modeling, using logistic regression, indicated that these increased rates of stability are seen with decreases in the rates of decline and with some decreases in the rates of improvement. Residents were significantly less likely to decline or to improve in the post-RAI period than in the pre-RAI period.

Preventing decline was a major purpose of the RAI and was one of the key emphases in our study. In ascertaining the overall effect of the intervention, the issue then becomes a comparison of the changes in the rates of decline and the rates of improvement for each outcome. Table 7 presents this comparison.

In Table 7, a single ratio is presented for each outcome. The numerator in that ratio is the difference between the number of residents who declined in the post-RAI cohort and the number who declined in the pre-RAI cohort. The denominator in the ratio represents the difference in the number of residents who improved in the post-RAI cohort and the number who improved in the pre-RAI cohort.

A ratio above 1 indicates that the change in the rate of decline affected more residents than did the change in the rate of improvement. A ratio below 1 indicates that the change in the rate of improvement across the cohorts affected more residents than did the change in decline rates.

Three of our measures focused on physical function. Our summary measure of ADL function and our indicator of urinary incontinence showed ratios significantly above 1. Analyses of

Table 7. Estimated Effects of Cohort Membership on Decline and Improvement in Nine Functional Areas

Functional Area	Differences in Decline Divided by Differences in Improvement
ADL function	2.02
Cognitive performance	1.92
Social engagement	1.89
Urinary continence	1.57
Bowel continence	1.05
Being understood	.95
Understanding others	.63
Sad or anxious mood	.11
Unsettled behavior	NA

NA = Ratio could not be computed because the post-RAI cohort evidenced increased decline and decreased improvement.

changes in bowel continence indicated that the changes in decline and improvement rates largely balanced each other.

Analyses that focused on specific subpopulations indicated that the reductions in decline in physical function occurred most often among those residents with the poorest baseline ADL status. Reductions in improvement rates occurred most often among residents with less ADL impairment at baseline.

In the functional areas more closely related to cognitive or psychosocial function, both cognitive performance and social engagement showed ratios significantly above 1.

In three areas, however, reductions in the rates of improvement far outweighed reductions in the rates of decline. In unsettled behavior,

mood problems, and understanding others, outcomes in the post-RAI cohort were significantly poorer than those in the pre-RAI cohort.

With these outcomes, analyses of subpopulations indicated that reductions in decline were most likely to occur among the least cognitively impaired, while reductions in improvement were more likely to occur among the more cognitively impaired residents.

One of the more puzzling aspects of all of the results related to outcomes is the observed reduction in improvement. Several explanations are possible, although investigation of them is beyond the scope of this evaluation. For example, given a relatively stable level of resources and increasing care demands, both because of growing impairment among residents and because of OBRA-87 requirements, facilities may have shifted existing resources to what they viewed as the most important goal—preventing avoidable decline.

This could be viewed as the most important goal for several reasons:

- Preventing or slowing rates of decline is the appropriate clinical goal for most residents in nursing facilities who suffer from a series of chronic diseases and disabilities and for whom full recovery is an unrealistic goal.
- Facility staff, surveyors, and families, too, tend to regard decline as a troublesome outcome, potentially indicative of poor quality of care.
- It may be easier for staff to identify the potential for decline and to intervene to prevent it than for them to identify the potential for improvement and put in place appropriate services. For example, achieving improvement often requires interventions from health care providers, such as physicians and therapists, who are beyond the control of the nursing home.

Thus, this finding deserves further investigation to ensure that nursing facilities are able to implement the full intent of the OBRA-87 reforms by not only helping residents maintain maximum practicable function but also to "attain" that maximum level of well-being.

Conclusions

The OBRA-87 reforms constituted an unprecedented implementation of comprehensive geriatric assessment in Medicare and Medicaid certified nursing homes.

The effects of this implementation on residents and staff in over 250 nursing homes in 10 States have been briefly described in this Executive Summary.

Within these facilities, a majority of Directors of Nursing and administrators have largely positive attitudes about the RAI. Surveys indicate that:

- A majority of Directors of Nursing believe the RAI is superior to their former assessment system, helps staff better identify problems, and helps staff respond to resident preferences.
- A majority of administrators believe that the information obtained with RAI is worth the time and effort, that the RAI has improved the quality of care planning in their facility, but that the RAI is an excessive paperwork burden.

The evaluation also documented a number of changes in the processes of care after the RAI went into effect. These included:

- Increases in the amount of accurate clinical information available about each resident
- Increases in the proportion of a resident's problems that were addressed in their care plan
- Significant positive changes in a number of other measures of process quality.

One of the more striking changes documented by this study is the significant reduction in hospitalization among the more cognitively impaired residents, without a concomitant increase in mortality.

When looking at resident outcomes, the picture is somewhat more complex. The RAI seems to have had a major, positive effect in a number of areas. In many important areas, it generated major reductions in decline rates, especially among specific types of residents. These areas included: nutrition, vision, ADL function, cognitive performance, social engagement, and urinary incontinence.

In other areas (e.g., pain, pressure ulcers, falls), the RAI had no discernible effect. In yet other areas (i.e., mood, understanding others, and unsettled behavior), it seems that the RAI adversely affected improvement rates for some groups of residents. These adverse effects apparently resulted from facilities' reallocation of effort, given the relatively constant level of resources and the increased information about patient needs.

In summary, when the RAI was implemented, it was accepted by the majority of administrators and senior nursing staff. It improved the quality of assessment and care planning in the sampled facilities. It improved some other aspects of the processes of care, and it significantly reduced the rates at which residents were hospitalized. The RAI also improved resident outcomes in such major areas as ADL function, cognitive performance, and social engagement.

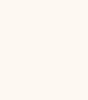
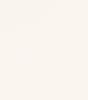
These results will form part of the basis for future activities of the Health Care Financing Administration related to the RAI and its revision and updating.¹² In those areas in which the evaluation results found no reduction in decline or a reduction in improvement, the RAPs will be subject to review and revision. These revisions will be aimed at assisting facility staff in meeting the OBRA-87 requirements that all

residents receive care allowing them to function, both physically and psychosocially, at their "highest practicable level."

References

1. C. Hawes. The Institute of Medicine study: Improving the quality of nursing home care. In P.R. Katz, R.L. Kane, & M.D. Mezey, *Advances in Long-Term Care*, New York: Springer, 1991, pp. 147-168.
2. E. Hing, E. Sekscenski, and E. Strahan. The national nursing home survey: 1985 summary for the United States. *Vital and Health Statistics, Series 13*, No. 97, DHHS Publication No. (PHS) 89-1758, Public Health Service, Washington, DC: Government Printing Office, 1989.
3. J.N. Morris, C. Hawes, B.E. Fries, C. Phillips, V. Mor, S. Katz, K. Murphy, M.L. Drugovich, and A.S. Friedlob. Designing the national resident assessment instrument for nursing homes. *The Gerontologist*, 30:293-307, 1990.
4. C. Hawes, J.N. Morris, C. Phillips, V. Mor, B.E. Fries, and S. Nonemaker. In press. Reliability estimates for the Minimum Data Set for nursing home resident assessment and care screening (MDS). *The Gerontologist*, 35, 1995.
5. J.N. Morris, C. Hawes, K. Murphy, S. Nonemaker, C.D. Phillips, B.E. Fries, and V. Mor. *Resident Assessment Instrument Training Manual and Resource Guide*. Natick, MA: Eliot Press, 1991.
6. C.D. Phillips, C. Hawes, V. Iannacchione, M.E. Nennsteil, V. Mor, B.E. Fries, and J.N. Morris. *Evaluating the Effects of the Resident Assessment Instrument: Methodological Issues and Approaches*. Research Triangle Park, NC: Research Triangle Institute, 1995.
7. C. Hawes, V. Mor, C.D. Phillips, J.N. Morris, and B.E. Fries. *The Impact of the Resident Assessment Instrument on Indicators of Process Quality*. Research Triangle Park, NC: Research Triangle Institute, 1995.
8. V. Mor, O. Intrator, J. Hiris, B.E. Fries, C.D. Phillips, C. Hawes, J. Teno, and J.N. Morris. *Impact of the MDS on Changes in Nursing Home Discharge Rates and Destinations*. Research Triangle Park, NC: Research Triangle Institute, 1995.

9. B.E. Fries, C. Hawes, J.N. Morris, C.D. Phillips, V. Mor, and P. Park. *Effects of the National Resident Assessment Instrument on Selected Health Conditions and Problems*. Research Triangle Park, NC: Research Triangle Institute, 1995.
10. C.D. Phillips, J.N. Morris, C. Hawes, V. Mor, B.E. Fries, V. Iannacchione, and M.E. Nennsteil. *The Impact of the Resident Assessment System on ADLs, Continence, Communication, Cognition, and Psychosocial Wellbeing*. Research Triangle Park, NC: Research Triangle Institute, 1995.
11. B.V. Shah, B.G. Barnwell, and G.S. Bieler. *SUDAAN: User's Manual, Release 6.40*. Research Triangle Park, NC: Research Triangle Institute, 1995.
12. J.N. Morris, S. Nonemaker, K. Murphy, C. Hawes, B.E. Fries, V. Mor, and C.D. Phillips. *A Commitment to Change: Future Revisions of HCFA's Resident Assessment Instrument*. Research Triangle Park, NC: Research Triangle Institute, 1995.



CMS Library
C2-07-13
7500 Security Blvd.
Baltimore, MD 21244

CMS LIBRARY



3 8095 00007918 2